

**Topic #19: Micro Grid**

**1. DEFINITIONS:**

- a. Micro Grid. An integrated energy system consisting of interconnected loads and distributed energy resources which, as an integrated system, can operate in parallel with the grid or in an intentional island mode.
- b. Smart Charging. The ability for a plug-in electric vehicle to communicate with the grid, allowing energy to flow to and from the grid and vehicle as needed.

**2. OBJECTIVE:**

As the Department of Defense focuses on energy security and looks for ways to further reduce dependence on fossil fuels, there is a need to more efficiently manage the power it has and supplement that power with renewable sources. The micro grid will enable more efficient power management, thereby reducing petroleum consumption and renewable power generation by conditioning and distributing the power into vehicle charging or grid distribution. Advanced energy storage will build further capability to use renewable energy sources. Micro grids and plug-in electric vehicles offer a unique solution to address both energy security and fossil fuel reduction goals.

Under this topic, the Government invites proposals for projects to design, build and demonstrate a micro grid with plug-in electric vehicles to 1) determine the technical readiness of micro grids to accept power from various inputs (AC/DC) while charging the selected vehicles and 2) provide output power to various applications in both AC/DC. The focus areas of this effort are the efficient management of power, integration of renewable energy, energy storage and smart charging of plug-in electric vehicles or plug-in hybrid electric vehicles. Vehicles selected by the contractor must be road worthy.

**3. DESCRIPTION:**

- a. Design, build and demonstrate a micro grid capable of handling up to 250kW of power with a minimum of three input ports (one for grid power and two for renewable energy) and a minimum of four output ports (at least three dedicated for vehicle charging and one for general AC loads). The micro grid should be designed and demonstrated using solar as the preferred renewable power source, while having the capability to operate in parallel with the grid. For the demonstration, a minimum of 25kW of solar input capacity is required.
- b. Provide a minimum of four light-duty plug-in electric vehicles or plug-in hybrid electric vehicles for demonstration. These vehicles can be either Original Equipment Manufacturer (OEM) or Non-OEM, but must meet the Federal Motor Vehicle Safety Standards (FMVSS) and Regulations to which manufacturers of motor vehicle and equipment items must conform and certify compliance.

- c. Demonstrate the storage capacity of the micro grid to capture and store at least two-days of power for charging for the associated plug-in electric vehicles or plug-in hybrid electric vehicles.
- d. Demonstrate the smart-charging of vehicles to allow the bi-direction flow of power to and from the vehicles to the micro grid. All smart charging should utilize standards parallel to or in concert with those being developed by the Society of Automobile Engineers (SAE) and/or other national groups.
- e. Collect comprehensive operational data and maintenance history from the micro grid system and vehicles for analysis and evaluation.
- f. The technical solutions developed under this BAA will be demonstrated and evaluated over a one (1) year period in Hawaii at Ft. Shafter or selected Government approved site in Oahu. The contractor will be responsible for delivery of the equipment to Hawaii as well as providing technical support to ensure micro grid operability for the duration of the demonstration and evaluation effort. Hardware deliverables to be retained by the Government include the micro grid, four (4) vehicles, charging stations, and all solar panels.

**PROPOSALS THAT REFLECT A “PARTIAL SOLUTION” TO THE TECHNICAL OBJECTIVE ARE NOT ACCEPTABLE. THE GOVERNMENT WILL CONSIDER ONLY THOSE PROPOSED PROJECTS THAT ADDRESS ALL ELEMENTS OF THE OBJECTIVE.**

**4. PROJECT DURATION AND ESTIMATED MAXIMUM FUNDING AVAILABLE:**

- a. Period of Performance. While projects with duration of one (1) year or less will be considered, the scope of this effort is such that we anticipate an 18 month project (6 months design/build and 12 month demonstration and evaluation). Projects proposed with a duration exceeding 18 months must be structured assuming incremental funding by the Government, and must be consistent with the maximum amounts identified in paragraph b. below.
- b. Funding. Maximum Government funding available for this project is \$5.7M
- c. Cost Ceiling/Share. Proposed projects with costs to the Government exceeding the amount identified in b. immediately above will be determined unaffordable. The contractor may propose total project costs in excess of the Government funded cost ceiling only if the excess costs are to be funded by a cost sharing arrangement. Please note that a cost sharing arrangement is not a consideration for award; therefore, no evaluation preference will be given if a cost share is proposed under this BAA topic.

- d. Single Award. The Government anticipates only one contract will be awarded as a result of this topic.
- e. All hardware (renewable power source, micro grid and vehicles) will become the property of the Government at the end of the contract period.

**5. MILESTONE SCHEDULE:**

- a. **Informal Talks Timeframe:** March 5, 2009 thru May 22, 2009
- b. **Electronic Copies of Proposals Due:** May 23, 2009 thru June 22, 2009

**Special Proposal Instructions:**

All proposals must be submitted by 3:00 PM EST on June 22, 2009 using the ASFI Bid Response System (BRS), which may be accessed at <https://acquisition.army.mil/asfi/default.cfm>. You will find Topic 19 for proposal submission by searching Contracting Opportunities for "TARBAATOPIC19." As reflected by the results of this search, proposals for Topic 19 may be uploaded via the ASFI BRS at the following URL:

[https://acquisition.army.mil/asfi/solicitation\\_view.cfm?psolicitationnbr=TARBAATOPIC19](https://acquisition.army.mil/asfi/solicitation_view.cfm?psolicitationnbr=TARBAATOPIC19)

- c. **Estimated Award Date:** August 5, 2009

**6. POINTS OF CONTACT:**

- a. **Technical:**  
Paul Makar  
E-mail: [paul.makar@us.army.mil](mailto:paul.makar@us.army.mil)
- b. **Contracting Officer:**  
David A. Henderson  
E-mail: [david.a.henderson1@us.army.mil](mailto:david.a.henderson1@us.army.mil)
- c. **Contract Specialist:**  
Damon McNally  
6501 E. Eleven Mile Rd  
AMSCC-TAC-ASGB, MS 322, Bldg 231  
Tel: 586.574.7118; Fax: 586.574.7018  
E-mail: [damon.mcnally@us.army.mil](mailto:damon.mcnally@us.army.mil)
- d. **Alt. Contract Specialist**  
Helen H. Smith  
Email: [helen.h.smith@us.army.mil](mailto:helen.h.smith@us.army.mil)